

IHS Standards of Care for Patients with Type 2 Diabetes

April, 2001

The Standards of Care for Type 2 diabetes have been developed and updated by the IHS National Diabetes Program to help provide consistent, quality care to patients with diabetes.

1. Baseline Studies

Height - Measure once and record on PCC Health Summary. If PCC is not available, record on diabetes flowsheet. For children <18 years of age, height and weight should be recorded at each visit. Use to calculate body mass index and ideal or reasonable body weight.

Date of Diabetes Diagnosis - Record on PCC Health Summary. If PCC is not available, record on diabetes flowsheet. Longer duration of diabetes correlates with increased risk of complications.

ECG - Obtain baseline then repeat every 1-5 years as clinically indicated (for those age 40 and above, or with diabetes duration over 10 years, every 1-2 years is recommended).

PPD - Should be documented once after diagnosis of diabetes (Offer INH prophylaxis to patients according to protocol – refer to Section 9).

2. Each Clinic Visit

Blood Pressure - Target BP is $\leq 130/80$. Additional protection against complications, including renal failure, may be obtained by lowering BP further.

Weight - Compare with measurements from prior visits to identify trends.

Blood Glucose - Results of lab determinations and self-monitoring should be available for timely discussion with the patient. Hemoglobin A1c (HbA1c) at 3-4 month intervals.

- ! Fasting/casual glucose measurement and self-monitoring records should be available for timely discussion with the patient at each visit. Self-monitoring BG records are vital to diabetes management decisions.
- ! Determine if **HbA1c** has been performed within the past 3-4 months, and order if due. Patients in acceptable glycemic control (HbA1c < 7.0%) should be tested at least every 6 months. HbA1c estimates the average degree of glycemic control over the preceding 3 months. HbA1c is the standard way to measure glycemic control.
- ! HbA1c results should be discussed with the patient at the time of the patient visit. If in-house measurement is unavailable, blood sample should be obtained several days before the clinic visit.

At each clinic visit, the appropriate education, intervention, referral, and or follow-up will be provided as indicated.

Foot Check - Inspection of feet and nails. Check for ingrown toenails, calluses, deformities, pressure points, ulcers, and cellulitis.

3. Annual

Creatinine - Screen for renal insufficiency.

Complete UA/Microalbuminuria - A test for urine protein should be performed yearly. If negative, a screening test for microalbuminuria should be performed (by A/C ratio or dipstick test). Dipstick-positive microalbuminuria should be confirmed on a separate specimen using an A/C ratio (abnormal $\geq 30\text{mg/gm}$) or 24 hour urine.

ACE inhibitors should be considered in patients with microalbuminuria or proteinuria, even if normotensive.

Lipid Profile

Risk factors for atherosclerosis include LDL >100 , HDL <40 in men and <45 in women, and TG >200 . Even lower LDL and TG values represent increased risk in persons with previously documented atherosclerosis. These risk factors, especially elevated LDL, should be treated aggressively. Caution should be used when considering agents that aggravate hyperglycemia.

A lipid panel should be performed annually (TC, LDL, HDL, TG). Consider direct LDL measurements, especially if TG >250 or if the specimen is to be obtained non-fasting. Elevated TC, LDL, TG and low HDL confer greater risk for atherosclerosis. Optimal LDL cholesterol levels for adults with diabetes are <100 . All patients with LDL >100 require medical nutrition therapy and other lifestyle modifications. Pharmacologic intervention is recommended if dietary interventions and lifestyle modifications are ineffective in lowering LDL to <100 .

Aspirin Therapy - Aspirin has been used as a primary and secondary prevention strategy to prevent cardiovascular events. Men and women with diabetes have a 2-4 fold increase in risk of dying from complications of cardiovascular disease (CVD). Aspirin in doses of 162-325 mg/day is recommended for patients with diabetes.

Strongly consider aspirin therapy as a primary prevention strategy in high risk men and women age 30 and above with diabetes. This includes individuals with family history of CVD, cigarette smoking, hypertension, obesity, albuminuria and dyslipidemia.

Use aspirin therapy as a secondary prevention strategy in diabetic men and women who have evidence of large vessel disease, such as history of MI, stroke, peripheral vascular disease, claudication or angina.

Eye Exam - Retinal exam through dilated pupils or fundus photo. Individuals with type 1 diabetes should receive an initial exam within 3-5 years of diagnosis once they are ≥ 10 years of age. People with type 2 diabetes should receive an initial exam at diagnosis and yearly thereafter.

Dental Exam - Annual screen for periodontal disease and other oral pathology.

Foot Exam - Risk assessment to include pulse check and sensory evaluation with monofilament, identification of foot deformity, and documentation of history of foot ulcers.

Screen for Neuropathy - By history and physical; include sensory, motor and autonomic evaluation.

4. Immunizations and Skin Tests

Flu Vaccine - Yearly

Pneumovax - Vaccinate everyone at the time of diagnosis. Revaccination should be strongly considered five (5) years after the first dose for those patients at highest risk of fatal pneumococcal infection (e.g., asplenic patients) or those at highest risk of rapid decline in antibody levels (e.g., those with chronic renal failure, nephrotic syndrome, or transplanted organs). Revaccinate all patients \geq age 65 years if it has been >5 years since initial vaccination.

Td - Every 10 years.

Hepatitis B - Vaccinate persons whose renal disease is likely to lead to dialysis or transplantation (serum creatinine ≥ 2.0).

PPD - Once after diagnosis unless known positive. PPD-positive people with diabetes, including AI/AN with Type 2 diabetes, have 5 times the risk of reactivating TB. All diabetic patients with positive PPD including those over age 35 should be given INH chemoprophylaxis according to current guidelines (see Section 9).

5. Special Aspects of Diabetes Care

Lab Tests - C-peptide, the other half of pro-insulin, can evaluate a patient's endogenous insulin secretion and help distinguish between Type 1 and Type 2 diabetes. The test can be useful in at least two clinical situations:

1. Solving a clinical problem about using oral agents vs. insulin.
2. Evaluating a patient with history of ketoacidosis when stable (useful in setting of ETOH, acidosis, and diabetes to determine ongoing need for insulin).

6. Self-Care Education - Use of the PCC education codes to document education is encouraged.

Nutrition Education - Meal planning, nutrition education, and exercise are the primary treatment strategies for Type 2 diabetes. The Indian Health Service Diabetes Program supports the American Diabetes Association position that all persons with diabetes receive regular nutrition counseling and are seen by an RD/nutritionist every six months to 1 year. Some people may require more frequent evaluation and counseling.

Diabetes Education - All patients with diabetes and their families should have diabetes self-care information. The National Standards for Diabetes Care and Patient Education provide guidelines for education program development with criteria specific for AI/AN health care facilities. Every facility should work towards providing systematic mechanisms to make culturally relevant self-care information available for patients.

Exercise Education - Exercise is associated with improvement in both short- and long-term metabolic control. Exercise counseling should be provided to all persons with diabetes. The appropriate type of activity, including frequency, duration, and intensity, should be individualized for each patient.

Education and Glycemic Control

- ! Self monitoring results should be discussed with the patient at each visit.
- ! HbA1c results should be discussed with the patient within 2 weeks of the test, preferably at the patient visit.

Self-Blood Glucose Monitoring (SBGM) - The purpose of SBGM is to determine the pattern of blood glucose throughout the day. This pattern provides information for selection and adjustments in therapy. Frequency of monitoring must be individualized and may vary as day-to-day circumstances require.

7. Routine Health Maintenance

Physical Exam

Complete exam as baseline, then routine.

Pap Smear/Pelvic Exam

Yearly

Breast Exam

Yearly

Mammogram

Every 1-2 years in women ages 40-49, yearly thereafter.

Rectal Exam/Stool Guaiac

Yearly in adults ≥ 40 years of age.

Tobacco Use

Current tobacco use should be documented and a referral made for cessation of tobacco use.

8. Pregnancy and Diabetes

All women who are in their childbearing years should receive pre-pregnancy counseling for optimizing metabolic control prior to conception. Counseling for family planning is essential to achieve this goal.

American Indian women are at increased risk for developing gestational diabetes (GDM), as are women with certain other risk factors, including but not limited to the following:

- previous gestational diabetes
- obesity
- previous fetal macrosomia
- insulin resistance syndrome
- unexplained stillbirth
- polycystic ovarian syndrome (PCOS)
- congenital anomaly
- family history of diabetes

These women should be screened for GDM early in pregnancy. If early screening is negative, the screen should be repeated at 24-28 weeks gestation.

Women with GDM are at increased risk of developing type 2 diabetes (about one third of all AI/AN women with GDM will develop diabetes within 5 years). These women should be re-tested by OGTT at least 6-12 weeks post delivery to determine their glycemic status. Women with a normal postpartum OGTT should be re-tested every 1-3 years. Bear in mind that diagnostic standards for diabetes in breastfeeding women have not been established. Blood glucose should be monitored in the postpartum and lactating period, including regular self blood glucose testing, as clinically appropriate.

All women with a history of GDM should receive counseling/education regarding lifestyle modifications that will reduce or delay the development of type 2 diabetes. Moreover, the importance of maintaining optimal glucose control prior to and during any subsequent pregnancy should be stressed. Mothers should be made aware that children of GDM pregnancies should be monitored for obesity and abnormalities of glucose utilization.

Further recommendations and guidelines for the screening, diagnosis and treatment of GDM may be found in the most recent *Clinical Practice Recommendations* of the American Diabetes Association (published annually), *Management of Diabetes in Pregnancy*, 3rd Edition (ADA), 2000, and Metzger BE, Coustan DR (Eds.): *Proceedings of the Fourth International Workshop-Conference on Gestational Diabetes Mellitus*. Diabetes Care 21 (Suppl. 2): B1-B167, 1998

9. Tuberculosis and Diabetes Patients*

An A-positive PPD skin test (i.e., ≥ 10 mm in duration 48-72 hours after administration) means that a person either has latent tuberculosis infection (LTBI) or active tuberculosis (TB) disease. Active TB disease needs to be ruled out prior to starting patients with LTBI on treatment. Treatment for active TB and LTBI are different*.

Patients with diabetes and LTBI are at high risk of progressing to active TB, if they are not treated for LTBI. Studies have shown that the risk is 2 to 6 times greater than in patients without diabetes. Other factors that further increase the risk for TB include: recent PPD conversion within 2 years, intravenous drug use, chest film showing prior active disease that was never treated, immunosuppressive drugs, and ESRD. Cutaneous anergy increases as patients age and develop complications of diabetes such as ESRD. Anergy may lead to false negative PPD test results.

*Recommendations for targeted tuberculin testing and treatment of LTBI in MMWR, June 09, 2000/ 49(RR06); 1-54 or at www.cdc.gov/mmwr/indrr_2000.html Or at: Treatment for active TB disease is detailed in: CDC Core Curriculum in TB: What the Clinician Should Know. CDC, 2000 (4th edition).

In most cases progression of LTBI to active TB can be prevented by treatment with INH. In general, patients with diabetes who have a positive PPD (accurately read by a provider trained in interpretation of PPD) should receive treatment for LTBI, *except* in the following circumstances:

- severe liver disease
- suicidal ideation
- adverse reaction to INH.

Patients receiving treatment for LTBI should be followed and monitored for potential hepatotoxicity. While national recommendations emphasize monitoring hepatotoxicity through systematic repetitive patient education and clinical evaluation for signs and symptoms of hepatotoxicity, baseline measurement of liver function tests and after one month should be considered, especially in patients receiving other potentially hepatotoxic medications. Some experts recommend that INH be discontinued if transaminase levels exceed three times the upper limit of normal when associated with symptoms or five times the upper limit of normal if the patient is asymptomatic.

IHS TB Protocol for Patients with Diabetes:

- Check the PPD status of all patients with diabetes.
- If the PPD status is negative or unknown:
 - PPD testing should be done within one year of initial work up for diabetes diagnoses, and treated if they have LTBI.
 - If no PPD has been *placed* since the diagnosis of diabetes, and the patient's PPD status is negative or unknown, a PPD status needs to be ascertained.
 - Subsequent PPD testing is done only if there is contact with an active TB case.
- If the PPD status is positive:
 - Check for completion of past treatment for active TB or LTBI (6-9 months of INH for LTBI or multiple drug therapy for active disease).
 - If the patient has not been adequately treated, search for active disease by history (weight loss, etc), fever (record temperature) and recent chest x-ray (within 6 months). If there is no evidence of active disease, recommend treatment for LTBI (9 mos. of INH 300 mg daily) to all patients with diabetes, regardless of age, unless the patient has liver disease, suicide ideation or a previous adverse reaction to INH. Patients with diabetes should be given pyridoxine (10-50 mg/day) with their INH. Consider directly observed therapy of LTBI when possible, especially for patients on dialysis.